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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,935

01/26/2004

Michael R. St. John

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05/10/2007

NALCO COMPANY

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EXAMINER

CORDRAY, DENNIS R

ART UNIT

PAPER NUMBER

1731

MAIL DATE

DELIVERY MODE

05/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/764,935

Applicant(s)

ST. JOHN ET AL.

Examiner

Dennis Cordray

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1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/26/2007 has been entered.

Response to Arguments

Applicant's amendments have overcome the rejection of Claims 1-4, 6-10, 13-18 and 22-23 under 35 U.S.C. 103(a) as being unpatentable over Underwood et al and over Underwood et al in view of others. Therefore, the rejections have been withdrawn. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made as detailed below.

In support of the current rejections, the following responses are provided to Applicant's arguments.

With regard to the use of the polymers of Coscia, it is known in the art to use polymeric additives in papermaking for multiple simultaneous purposes, such as fixing agents, drainage and retention aids, flocculants and wet or dry strength aids (see Auhorn et al, 6083348, col 2, lines 34-37), thus the claimed polymers can serve more than one purpose in the process. Also see the teachings of Sanchez as detailed in the rejections below. The claimed method recites a step of adding a particular polymer to a

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paper sheet. In the prior art, the same polymer is added to a paper sheet, although for a different purpose. "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

With regard to monoreacted aldehyde functionalized polymers, the prior art cited in the rejections performs the aldehyde-polymer reaction under the same conditions as in the instant invention, as detailed in the rejection below, thus the same result is expected, monoreacted aldehyde functionalized polymers (Coscia, cols 8-12, Examples 1-10). Additionally, Coscia et al teaches that, in their simplest form, the polymers of the invention comprise acrylamide, monoreacted glyoxylated acrylamide and units that supply ionic charge to the molecule (col 4, lines 48-56).

With regard to the ratio of glyoxal to amide disclosed by Coscia et al, Applicant is arguing on the basis of a single example. In other examples, the ratio is 0.17:1. In addition, the disclosure teaches a range of up to about 0.2:1 (col 9, lines 23-25; col 6, lines 59-67).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites limitation in Claim 19. Since Claim 19 has been cancelled, there is insufficient antecedent basis for this limitation in the claim.

Claims 21-22 depend from and thus inherit the indefiniteness of Claim 20.

Claim Rejections - 35 USC § 103

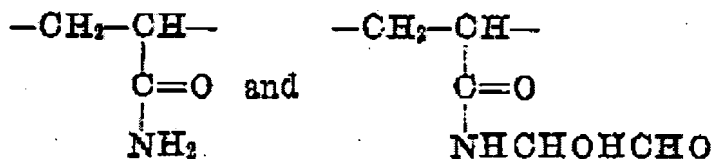
The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-10, 13-18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coscia et al (3556932) as evidenced by Auhorn et al (6083348) or Sanchez (6315866).

Coscia et al discloses adding an aldehyde-functionalized vinylamide polymers either to preformed paper or to the fibrous suspension in a papermaking process (Abstract; col 7, lines 23-31). The polymers contain at least 50 mole percent, preferably greater than 75 mole percent, and up to 99 mole percent vinylamide (nonionic) units, which are exemplified by acrylamide (col 3, lines 42-60; col 8, Example 1, lines 9-10 and 73-75). The remainder of the monomer units in the polymer can be ionic monomers or nonionic "spacers" (such as vinyl acetate) (col 3, lines 46-49 and 58-60). Ionic monomers include cationic, such as diallyldimethyl ammonium chloride (DADMAC, also exemplified in col 3, lines 42-60; col 8, Example 1, lines 9-10 and 73-75), and anionic, such as acrylic acid (col 5, lines 69-72; col 10, Example 6, lines 45-46). The

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vinylamide units are partially glyoxylated so that the ratio of glyoxylated to non-glyoxylated units in the range of 0.06 to 0.2 (6-20% glyoxylated) gives the best results (col 6, lines 59-67). The molecular weight can be from 100,000 to 1,000,000 (col 3, lines 64-66). The polymeric composition significantly overlaps the claimed compositions. Coscia et al teaches that, in their simplest form, the polymers of the invention comprise the units



which are acrylamide, monoreacted glyoxylated acrylamide, and units that supply ionic charge to the molecule (col 4, lines 48-56).

To make the monoreacted glyoxylated acrylamide, glyoxal is reacted with the acrylamide containing polymer by warming a dilute neutral or slightly alkaline aqueous solution of glyoxal and polymer until a slight increase in viscosity is observed (col 6, lines 29-33). Example 1 provides further detail, reciting a pH of 7.5 to 8 and a temperature of 30 °C (col 8, lines 40-54). The reaction conditions are within the range given in the instant Disclosure for the reaction (see p 10, lines 4-11), thus the product will be or, at least, it would have been obvious to one of ordinary skill in the art to obtain a monoreacted glyoxylated acrylamide polymer.

Coscia discloses that the glyoxylated acrylamide polymer is added to the papermaking fibrous suspension or to the preformed paper in an amount from 0.2 to 2% of the dry weight of the fibers, or from 4 to 40 lb/ton (col 7, lines 24-31 and 38-44)

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although smaller amounts also impart significant amount of wet strength. Although not explicitly disclosed, spraying is a well known method of applying an aqueous solution to a paper and would have been obvious to one of ordinary skill in the art as a functionally equivalent option.

Coscia et al does not disclose that the polymers enhance press section dewatering. It is known in the art to use polymeric additives in papermaking for multiple simultaneous purposes, such as fixing agents, drainage and retention aids, flocculants and wet or dry strength aids (Auhorn et al, 6083348, col 2, lines 34-37), thus the claimed polymers can serve more than one purpose in the process. Sanchez teaches that polyacrylamides (100% nonionic), copolymers of polyacrylamide and α,β -unsaturated quaternary ammonium compounds (i.e.-DADMAC) and glyoxylated polyacrylamide-DADMAC copolymers increase dry strength of paper products (col 1, lines 49-51 and 61-63; col 8, lines 32-58). Sanchez discloses acrylamide-DADMAC copolymers as dry strength agents and teaches that the copolymers provide several other advantages in papermaking processes, such as improved drainage and retention (dewatering aid), improved sheet formation and increased brightness (Abstract; col 2, line 63 to col 3, line 4 and lines 29-30).

The claimed and prior art methods comprise adding the same polymer to a paper sheet in the same amount, thus the resulting composition is the same. In addition to enhancing wet strength, the copolymers disclosed by Coscia et al will also function as dewatering aids because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of

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either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coscia et al in view of Carrier et al (5654198).

Coscia et al does not disclose a polymer containing zwitterionic monomers.

Carrier et al discloses that monomers used in preparing polymers useful in aqueous systems for problems associated with particulates, emulsification and flocculation (i.e.-dewatering) can be anionic, cationic and zwitterionic (col 3, lines 14-49). Carrier et al discloses copolymers comprising acrylamides and the anionic, cationic or zwitterionic monomers (col 3, lines 50-54; col 3, line 66 to col 4, line 11). Pendant aldehyde functionality is added by covalently attaching an aldehyde containing monomer to the acrylamide (col 3, line 67 to 4, line 2; col 4, lines 42-46).

The art of Coscia et al, Carrier et al and the instant invention are analogous as pertaining to the use of glyoxylated acrylamide polymers in papermaking. It would have been obvious to one skilled in the art at the time of the invention to use a glyoxylated acrylamide polymer containing zwitterionic monomers in the process of Coscia et al in view of Carrier et al as a functionally equivalent option.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

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